

COMANDO DA AERONÁUTICA
CENTRO DE INVESTIGAÇÃO E PREVENÇÃO DE
ACIDENTES AERONÁUTICOS



FINAL REPORT
IG - 089/CENIPA/2014

OCCURRENCE:	SERIOUS INCIDENT
AIRCRAFT:	PT-JJR
MODEL:	ST-10
DATE:	01MAY2014



NOTICE

According to the Law n° 7565, dated 19 December 1986, the Aeronautical Accident Investigation and Prevention System – SIPAER – is responsible for the planning, guidance, coordination and execution of the activities of investigation and prevention of aeronautical accidents.

The elaboration of this Final Report was conducted taking into account the contributing factors and hypotheses raised. The report is, therefore, a technical document which reflects the result obtained by SIPAER regarding the circumstances that contributed or may have contributed to triggering this occurrence.

The document does not focus on quantifying the degree of contribution of the different factors, including the individual, psychosocial or organizational variables that conditioned the human performance and interacted to create a scenario favorable to the accident.

The exclusive objective of this work is to recommend the study and the adoption of provisions of preventative nature, and the decision as to whether they should be applied belongs to the President, Director, Chief or the one corresponding to the highest level in the hierarchy of the organization to which they are being forwarded.

This Report does not resort to any proof production procedure for the determination of civil or criminal liability, and is in accordance with Appendix 2, Annex 13 to the 1944 Chicago Convention, which was incorporated in the Brazilian legal system by virtue of the Decree n° 21713, dated 27 August 1946.

Thus, it is worth highlighting the importance of protecting the persons who provide information regarding an aeronautical accident. The utilization of this report for punitive purposes maculates the principle of “non-self-incrimination” derived from the “right to remain silent” sheltered by the Federal Constitution.

Consequently, the use of this report for any purpose other than that of preventing future accidents, may induce to erroneous interpretations and conclusions.

N.B.: This English version of the report has been written and published by the CENIPA with the intention of making it easier to be read by English speaking people. Taking into account the nuances of a foreign language, no matter how accurate this translation may be, readers are advised that the original Portuguese version is the work of reference.

SYNOPSIS

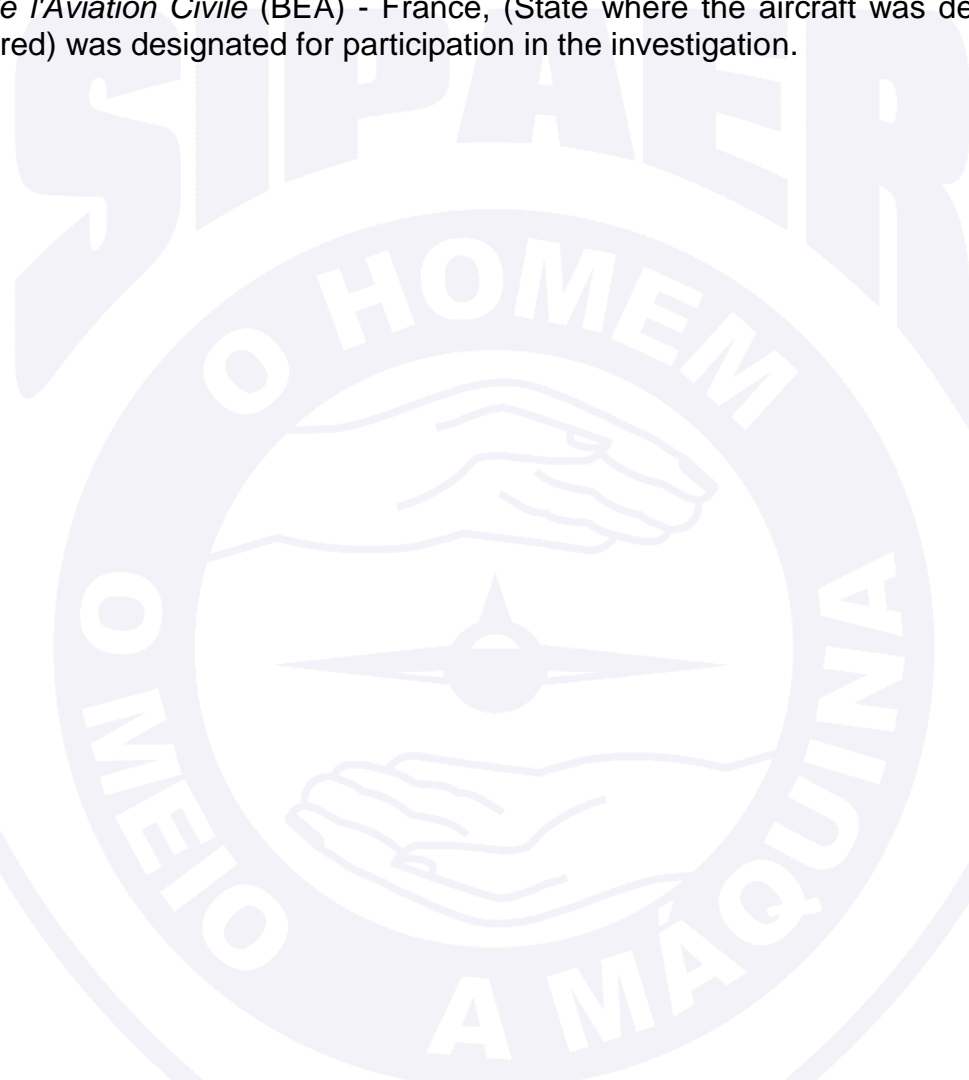
This is the Final Report of the 01MAY2014 serious incident with the ST-10 aircraft, registration PT-JJR. The serious incident was classified as “[RE] Runway Excursion / Overshooting”.

During the landing, the aircraft crossed the runway threshold, covering about 20 meters over underbrush.

The aircraft had minor damage.

The pilot and the passenger left unharmed.

An Accredited Representative of the *Bureau d'Enquêtes et d'Analyses pour la Sécurité de l'Aviation Civile* (BEA) - France, (State where the aircraft was designed and manufactured) was designated for participation in the investigation.



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GLOSSARY OF TECHNICAL TERMS AND ABBREVIATIONS

ANAC	Brazil's National Civil Aviation Agency
BEA	Bureau d'Enquêtes et d'Analyses pour la Sécurité de l'Aviation Civile
CA	Airworthiness Certificate
CAVOK	Ceiling and Visibility OK
CENIPA	Aeronautical Accident Investigation and Prevention Center
CG	Center of Gravity
CMA	Aeronautical Medical Certificate
IAM	Annual Maintenance Inspection
METAR	Meteorological Aerodrome Report
MNTE	Airplane Single Engine Land Rating
PPR	Private Pilot License – Airplane
RMK	Remark
ROTAER	Auxiliary Air Route Manual
SACI	Integrated Civil Aviation Information System
SDCO	ICAO Location Designator – Sorocaba Aerodrome - SP
SDIM	ICAO Location Designator – Itanhaém Aerodrome - SP
SBST	ICAO Location Designator - Santos Air Base Aerodrome, Guarujá - SP
SPECI	Selected Special Aeronautical Weather Report
TPP	Registration Category of Private Service - Aircraft
UTC	Universal Time Coordinated
VFR	Visual Flight Rules

1. FACTUAL INFORMATION.

Aircraft	Model: ST-10	Operator: Private
	Registration: PT-JJR	
	Manufacturer: Socata	
Occurrence	Date/time: 01MAY2014 - 1442 UTC	Type(s): [RE] Runway Excursion
	Location: SDIM	
	Lat. 24°09'53"S Long. 046°47'08"W	Subtype(s): Overshooting
	Municipality – State: Itanhaém – SP	

1.1 History of the flight.

The aircraft took off from the Sorocaba Aerodrome (SDCO) - SP, to the Itanhaém Aerodrome (SDIM) - SP, at about 1340 (UTC), in order to transport personnel with a pilot and a passenger on board.

During the run after landing, the aircraft ran the entire length of the runway, exceeded the limits of SDIM's threshold 15 in approximately twenty meters, stopping over underbrush.

The aircraft had minor damage.

The pilot and the passenger left unharmed.



Figure 1 - Aircraft after occurrence with the runway in the background.

1.2 Injuries to persons.

Injuries	Crew	Passengers	Others
Fatal	-	-	-
Serious	-	-	-
Minor	-	-	-
None	1	1	-

1.3 Damage to the aircraft.

The aircraft had minor damage.

1.4 Other damage.

None.

1.5 Personnel information.

1.5.1 Crew's flight experience.

Hours Flown	Pilot
Total	111:00
Total in the last 30 days	Unknown
Total in the last 24 hours	01:00
In this type of aircraft	65:00
In this type in the last 30 days	02:00
In this type in the last 24 hours	01:00

N.B.: The data related to the flown hours were obtained through the ANAC's SACI records.

1.5.2 Personnel training.

The pilot took the PPR course at the Itanhaém Aeroclub – SP, in 2013.

1.5.3 Category of licenses and validity of certificates.

The pilot had valid MNTE Rating.

1.5.4 Qualification and flight experience.

The pilot was qualified, had 111 flight hours and 65 hours in that aircraft model.

1.5.5 Validity of medical certificate.

The pilot had valid CMA.

1.6 Aircraft information.

The aircraft, serial number 153, was manufactured by Socata, in 1972 and it was registered in the TPP category.

The aircraft had valid Airworthiness Certificate (CA).

The airframe, engine and propeller logbooks records were updated.

The last inspection of the aircraft, the "100-hours/IAM" type, was performed on 24APR2014, by the Master Serviços Aeronáuticos maintenance organization, in Sorocaba - SP, having flown 01 hour the revision.

1.7 Meteorological information.

The METAR of the Guarujá Aerodrome / Santos Air Base (SBST), away 30 NM from the scene of the accident, provided the following information:

METAR SBST 011300Z 35017G30KT 9999 BKN040 27/09 Q1010=

SPECI SBST 011325Z 36023G42KT CAVOK 28/09 Q1009=

METAR SBST 011400Z 36022G37KT CAVOK 28/09 Q1008=

METAR SBST 011500Z 34016G27KT CAVOK 27/10 Q1007=

It was found that the conditions were favorable for the visual flight, with visibility over 10km. However, the wind had an approximate intensity of 23kt with gusts of up to 42kt.

The satellite image of 1430 (UTC) presented a cold front moving in the South - Northeast direction (Figure 2).

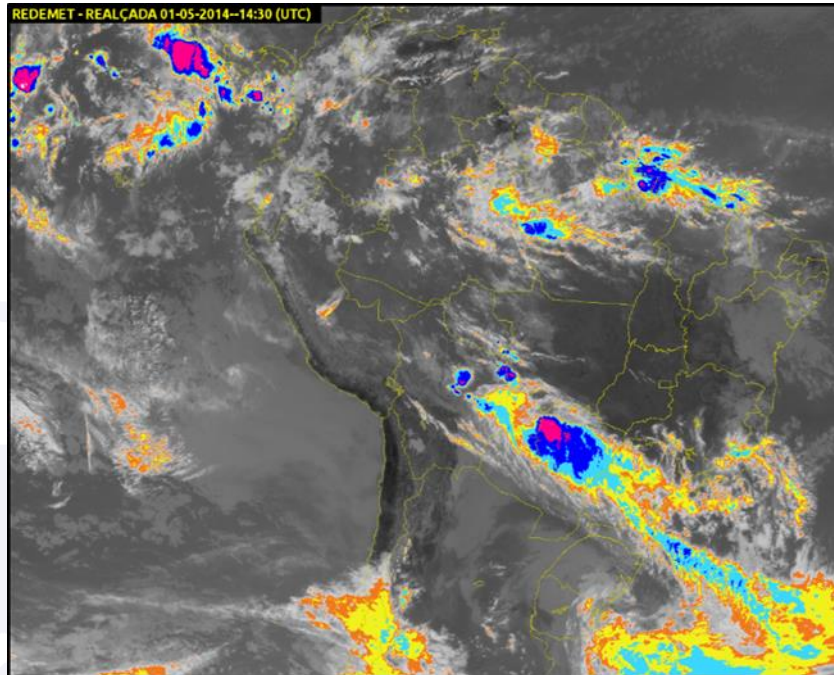


Figure 2 - Satellite image at the moment of the occurrence.

1.8 Aids to navigation.

Nil.

1.9 Communications.

Nil.

1.10 Aerodrome information.

The Aerodrome was public, and operated under visual flight rules (VFR), in both daytime and nighttime periods.

The runway was made of asphalt, with thresholds 15/33, dimensions of 1,350m x 30m, with elevation of 14 feet.

The Remarks Field (RMK) of the ROTAER reported that operations should be carried out with caution because of trees near thresholds 15 and 33. It also warned of the existence of a 36 meters high power grid, 980 meters away from threshold 33.

1.11 Flight recorders.

Neither required nor installed.

1.12 Wreckage and impact information.

Nil.

1.13 Medical and pathological information.

1.13.1 Medical aspects.

Not investigated.

1.13.2 Ergonomic information.

Nil.

1.13.3 Psychological aspects.

Not investigated.

1.14 Fire.

There was no fire.

1.15 Survival aspects.

Nil.

1.16 Tests and research.

Nil.

1.17 Organizational and management information.

Nil.

1.18 Operational information.

The aircraft was within the weight and balance limits specified by the manufacturer.

The pilot was qualified and had 111 total flight hours, 65 hours in the aircraft.

According to reports, the takeoff from SDCO was performed under meteorological conditions favorable for the visual flight.

Near the Itanhaém city, the pilot realized that the weather was degraded, especially with strong winds and the presence of gusts. Under these conditions, two unsuccessful attempts were made to land with a go-around procedure.

At the third approach to threshold 33, the aircraft landed. It was reported that the touch occurred after the first third of the runway, and it was not possible to stop the aircraft before the end of the opposite threshold.

The aircraft covered about twenty meters on the grass after the threshold, stopping in a wetland (Figure 3).



Figure 3 - Aircraft in the stop position, after threshold 15.

According to the checklist, the aircraft needed at least 525 meters of runway to land, with a temperature of 30° C at sea level.

During the initial investigation action, it was verified that there were 120 liters of fuel in the tanks of the aircraft. The approximate aircraft consumption was 35 liters per hour, resulting in an endurance of about 3 hours.

1.19 Additional information.

Nil.

1.20 Useful or effective investigation techniques.

Nil.

2. ANALYSIS.

It was a personnel transport flight from SDCO to SDIM.

At the time of landing at SDIM, the pilot reported that the wind was in the 360° direction and had an intensity of approximately 23kt, with the aircraft Manual presenting a 20kt crosswind limitation for landing.

According to the SBST METAR, there was strong wind and gusts that reached 42kt. According to the satellite image of the day and time of occurrence, there was also the presence of a cold front moving in the South - Northeast direction.

According to the checklist, the aircraft needed at least 525 meters of runway to land with a temperature of 30° C at sea level.

According to ROTAER, the SDIM runway was 1,350m long, and had a RMK that the operations should be performed with caution, due to trees near thresholds 15 and 33, and also alerted to the existence of a 36m high power grid, at 980m away from threshold 33.

These obstacles would normally require a more pronounced slope in the final approach and in this type of procedure, it would be essential to control the speed accurately, in order to avoid fluctuation at the time of touch and subsequent braking.

Landing is a critical phase of flight. An inopportune analysis of operational standards coupled with inadequate pilot assessment of certain parameters related to the operation of the aircraft can considerably increase the likelihood of an accident or incident.

The persistence of the landing, despite unfavorable weather conditions and obstacles near the thresholds, showed a reduction in the level of situational awareness of the pilot, compromising his assessment of the risks in that context of operation.

In addition, there was enough fuel for the aircraft to proceed to an alternate aerodrome, reinforcing the inadequacy of the decision-making process.

After the two go-around procedures, the pilot did not manage the risk properly when proceeding to the landing in adverse conditions of gusty winds, employing a slope with more accentuated angle. These evidences allied to a probable inadequacy of the application of the commands led to the irreversibility of the event.

During the field investigation at the accident site, it was verified that there were no signs of irregularities in the brake system and in the aircraft's powertrain.

3. CONCLUSIONS.

3.1 Facts.

- a) the pilot had valid Aeronautical Medical Certificate (CMA);
- b) the pilot had valid MNTE Rating;
- c) the pilot was qualified, had 111 flight hours and 65 hours in the aircraft of the occurrence.
- d) the aircraft had valid Airworthiness Certificate (CA);
- e) the aircraft was within the limits of weight and balance;
- f) the airframe, engine and propeller logbooks records were updated;

- g) the weather conditions in SBST indicated wind with an approximate intensity of 23kt and gusts of up to 42kt;
- h) the aircraft performed a go-around procedure on two landing attempts in SDIM;
- i) on the third attempt, the touch occurred after the first third of the runway;
- j) the aircraft exceeded the limits of the runway after threshold 15;
- k) the aircraft had minor damage; and
- l) the pilot and passenger left unharmed.

3.2 Contributing factors.

- Control skills – undetermined.

There may have been inadequate use of the aircraft flight commands, due to the prevailing wind at the time of the occurrence, as well as the presence of obstacles in the final approach.

- Adverse meteorological conditions – a contributor.

Wind gusts at the time of the occurrence interfered in the operation and led to abnormal circumstances.

- Airport infrastructure – undetermined.

The possible contribution of this aspect is related to the existence of a 36 meters high power grid, 980 meters away from threshold 33, as well as the presence of trees near thresholds 15 and 33.

- Piloting judgment – undetermined.

There may have been an inadequate evaluation by the pilot of certain parameters related to the landing of the aircraft.

- Flight planning – a contributor.

There was inadequacy in the preparation work performed for the flight by the pilot, since the METAR, which indicated wind gusts up to 42kt, were not considered in due course.

- Perception – a contributor.

The consecutive attempts to approach for the landing, until its conclusion, denoted an impaired perception of the existing risks.

The low level of situational awareness presented impaired the correct assessment of the situation and anticipation of the consequences of continuing to land in such circumstances, favoring the crossing of the runway limits.

- Decision-making process – a contributor.

The decision to proceed to landing, even after two go-around procedures, denoted a failed decision-making process, based on an inaccurate assessment of the operational context, which contributed to the occurrence of the serious incident.

4. SAFETY RECOMMENDATION.

A proposal of an accident investigation authority based on information derived from an investigation, made with the intention of preventing accidents or incidents and which in no case has the purpose of creating a presumption of blame or liability for an accident or incident. In addition to safety recommendations arising from accident and incident investigations, safety recommendations may result from diverse sources, including safety studies.

In consonance with the Law n°7565/1986, recommendations are made solely for the benefit of the air activity operational safety, and shall be treated as established in the NSCA 3-13 “Protocols for the Investigation of Civil Aviation Aeronautical Occurrences conducted by the Brazilian State”.

Recommendations issued at the publication of this report:

Nil.

5. CORRECTIVE OR PREVENTATIVE ACTION ALREADY TAKEN.

None.

On May 16th, 2019.

